THE VETERINARY RECORD

FOUNDED BY WILLIAM HUNTING, F.R.C.V.S., 1888

No. 33. AUGUST 19, 1950 VOL. 62.

BOVINE CYSTICERCOSIS IN GREAT BRITAIN

Some Cases and Comments

BY

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AND

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The persistence of *Cysticercus bovis* in this country was reported by McLean in 1948[1], and since that time it has been found, on routine examination, in all the larger slaughtering establishments.

The purpose of this article is to place on record two cases of generalised cysticercosis found in bovines on routine examination at the large Abattoir attached to the above Market and to make some observations on the condition and the problems it presents to the practical Meat Inspector and Public Health official.

INCIDENCE

Cysticercus bovis is the intermediate stage of *Taenia saginata*, a tapeworm of man. It is cosmopolitan in distribution and has been described in most countries in Asia, Africa, America and Europe. In Berlin, Ostertag[2], gives the incidence of *Cysticercus bovis* as 0·32 per cent. in cattle slaughtered in 1904, and 0·27 per cent. in 1928; other German workers quote up to 2 per cent. in various districts. In Holland the figures for 1934 were 0·83 per cent. and for 1935, 0·92 per cent. No figures are available for the incidence of *Cysticercus bovis* in Great Britain before 1948; indeed, it is very doubtful whether it was even looked for in routine meat inspection before McLean's article appeared. Stockman (1909)[3] related that he had met with several cases and that others had been reported by practitioners. Dr. Robertson[4], Medical Officer of Health, Leith, records in 1920 that some of his patients who had been prescribed a raw meat diet developed *Taenia saginata*, but, despite this, we find that Leighton, in his "Handbook of Meat Inspection—a Guide to the Public Health (Meat) Regulations (Scotland), 1924," writes that examination for *Cysticercus bovis* was "not hitherto very common, though a few inspectors carry it out." Viljoen[5] quotes Dunlop Young as stating that he failed to find a single record of *Cysticercus bovis* in Great Britain in 1935, and comments that such is incredible if it is true.

PREDILECTION SITES OF CYSTICERCUS BOVIS

The normal host is the bovine. Writers mention most commonly the muscles of mastication, heart, tongue and diaphragm; also the oesophagus and various skeletal muscles. More rarely cysticerci have been reported in the lungs, liver, lymph nodes, kidney, pancreas and bladder.

APPEARANCE

The cysticercus is about the size of a small pea. It occurs mainly in the intramuscular connective tissues and is normally surrounded by a small fibrous capsule, from which it may easily be enucleated. The scolex is about the size of a pinhead and lies in a membrane filled with clear fluid. Various stages of infection and/or degeneration of the cysts may occur.

DIAGNOSIS

Viable cysts may be crushed between two slides and examined under the low power of the microscope. The presence of a scolex with four suckers and without hooks is diagnostic for all practical purposes. Where the cyst has degenerated diagnosis is dependent on histological examination.

CASE A.

A three-year-old bullock despatched from March, Cambridgeshire, on April 26th, 1950, and slaughtered on April 28th.

Routine examination of the masseter muscles indicated a massive infestation and consequently the carcase and organs were condemned. It was decided to conduct a thorough examination of the carcase, which was sliced into pieces approximately $\frac{1}{8}$ inch in thickness. The work was carefully carried out and it is not thought any more than 5 per cent. of the cysts present escaped detection. The results of the examination are tabulated below:—

	Active cysts	Non-active cysts	Total
Head—			
Tongue substance and muscles ...	28	4	32
External masseter muscles—			
Left side	26 } 52	1 } 5	57
Right side	26 }	4 }	
Pterygoid muscles—			
Left side	10 } 21	0	21
Right side	11 }		
Right buccal gland	1	0	1
Muscles of the larynx	6	2	8
Total	108	11	119
Carcase muscles—			
Neck	25	7	32
Longissimus dorsi	92	12	104
Intercostals	8	3	11
Shoulder	35	22	57
Brisket	41	40	81
Forearm and carpus	54	17	71
Sublumbar	17	6	23
Pelvis and rump	34	9	43
Abdominal muscles	21	8	29
Hind limb	179	64	243
Total	506	188	694
Heart muscle	2	9	11
Kidney substance	1	0	1
Diaphragm	0	3	3
Total in entire body	617	211	828

CASE B.

A three-year-old bullock despatched from Spalding, Lincs, on April 28th, 1950, and slaughtered on May 1st, 1950. Again examination of the masseter muscles revealed a very heavy infestation; accordingly the carcase and organs were condemned and the flesh finely minced. Fig. 1 is a section through the left ventricle and shows several cysticerci. The results of the examination are tabulated below:—

	Active cysts	Non-active cysts	Total
Head—			
Tongue substance and muscles	20	0	20
External masseter muscles—			
Left side	17 } 36	0	36
Right side	19 }		
Pterygoid muscles—			
Left side	3 } 5	0	5
Right side	2 }		
Muscles of the larynx	7	0	7
Total	68	0	68
Carcase muscles—			
Neck	28	0	28
Longissimus dorsi	28	10	38
Intercostals	22	0	22
Shoulder	32	0	32
Brisket	22	0	22
Forearm and carpus	26	0	26
Sublumbar muscles	16	0	16
Pelvis and rump	8	0	8
Abdomen	24	0	24
Hind limb	125	0	125
Total	331	10	341
Heart muscle	68	8	76
Diaphragm	27	1	28
Total in entire body	494	19	513

Remarks

The term " Active " denotes normal healthy cysticerci presumed to be infective to man. The term " Non-active " denotes cysticerci which apparently have died.

In case " A " the capsules in which the non-active cysticerci were enclosed were full of a purulent material, whereas in Case " B " these were shown by a thickening of this capsule and a disintegration of its contents, or by the presence of purulent material.

NOTES ON FINDINGS

It would seem to be of great practical importance that the infestation of the external messeter muscles was approximately 7 per cent. in both cases—a great concentration in so small an area, and an indication that the present practice of incising the masseter muscles is sound. In comparison, other oft-quoted sites show great variation, *e.g.*, the heart in Case " A " contained 1·32 per cent. of the total cysts, whereas in Case " B " it contained 14·81 per cent. The diaphragm in Case " A " contained only 0·36 per cent., whereas in Case " B " it contained 5·45 per cent. It is of particular interest to note that the hind limb, without the rump, contained 29·34 per cent. of total cysts in Case " A " and 24·36 per cent. in Case " B."

Cysticercus bovis: Case B. Heart × ½. View of left ventricle showing number of cysticerci.

The number of cysts present in the heart of both animals is worthy of note, as is also the fact that a high proportion of the active cysts in Case " B " were enclosed in a considerably thicker capsule than those in other parts of the body. This would appear to indicate that, although the heart frequently is affected, it is not a completely satisfactory habitat for the cysticercus, which appears to die off quicker in this situation than in other parts of the body. Thus the presence of degenerated cysts in the heart muscle must not be taken to indicate that those in other parts of the body are also degenerated.

IMMUNITY

The question obviously arises, " Does one infestation with cysticerci prevent further infestation?" In both cases examined there was no evidence to show that infestation took place other than in one massive dose. In Case " A " the relatively high proportion of non-active cysts appeared to be due to infection of the living cyst, rather than degeneration due to age, and this theory is supported by the fact that several living cysts containing a small amount of purulent material were found, this indicating the early stages of infection. The experiments of Penfold, Penfold and Philips in Australia (1936), indicate that some immunity can occur to a second infestation; they even suggest that it may be possible to produce a live vaccine against the condition. However, a few authors, notably Pillwitz (1930) and Van der Slooten (1936), have demonstrated calcified and viable cysts in the same body, and it would

therefore appear advisable to regard all cysticerci, whether viable or not, as indicating a potentially dangerous carcase.

General

Figures quoted by Greatorex in a paper read at the Congress of the Royal Sanitary Institute in April this year, indicate that the amount of infestation with *Cysticercus bovis* in cattle slaughtered in England and Wales varies between about 0·08 per cent. and 0·35 per cent. During the year 1949 the writers found an incidence of 0·25 per cent. Between January and April this year 95 cases were found in 29,000 bovine carcases examined—0·33 per cent. —whilst during May, 1950, in 10,117 carcases examined 114 cases of the condition were discovered, an incidence of 1·12 per cent. In one recent batch of 225 oxen received from Scotland, 12 cases of *Cysticercus bovis* were demonstrated.

Examination in the Abattoir

Memo. 62 (Foods) advises a routine linear incision of the cheek muscles parallel to the lower jaw to detect *Cysticercus bovis* infestation, and the Scottish Regulations make a similar provision, adding that the heart shall be opened and the ventricles incised.

Viljoen states that in 113 lightly infested carcases examined at the Blomfontein Abattoir, according to South African Regulations, the masticatory muscles *only* were affected in 40 instances, the masticatory and shoulder muscles in 35, the shoulder *only* in ten and the shoulder and tongue *only* in five. In this series no examination of the muscles of the hind limb was carried out.

In view of the above and the findings of many other workers, we would suggest the following *minimum* standard of inspection for this country:—

1. *External masticatory muscles*: two incisions on either side parallel to the lower jaw cutting down to the parotid lymph node.
2. *Internal masticatory muscles*: one incision parallel to the lower jaw.
3. *Oesophagus*: exposure of the lumen followed by palpation.
4. *Heart*: one incision through the left ventricle exposing all four chambers with multiple incisions of the wall from the inside.
5. *Shoulder*: at least one incision into the triceps muscles.
6. *Hind Limb*: at least one incision into the adductor muscles.

Treatment of Affected Carcases

Although the term "generalisation" is not defined, Memo. 62 (Foods) advises condemnation of the carcase where *Cysticercus bovis* is "generalised in the musculature," but makes no provision for light infestations, whilst the Scottish Regulations permit the affected head and/or carcase to be passed for food provided it has been retained for at least three weeks in cold storage at a temperature of not more than 20° F. Although this period of storage is considered adequate to kill the cysticercus, the latter regulations do *not* insist on the whole carcase, including head and offals, being stored in the event of infestation in either. This, in our view, is a grave omission.

Authorities vary on the length of time it is necessary to store the carcases and the maximum temperature permissible. Ostertag states that chilling for three weeks is sufficient to kill the cysticercus, but Viljoen and many other authors have demonstrated viable cysts in beef up to 41 days after chilling commenced. Viljoen concludes that freezing at a steady temperature of minus 10° C. for 14 days is lethal even to the most deep-seated cysticerci, and other authors support this view.

We are of the opinion that the present position in this country regarding treatment of affected carcases and offals is unsatisfactory, and that legislation should be adopted to standardise the procedure and thus ensure uniformity throughout the various local authorities on whose shoulders the final responsibility rests.

Other methods of destroying cysticerci in meat, such as cooking and pickling, would appear to be of little practical importance in this country.

Summary

1. Two cases of generalised *Cysticercus bovis* infestation are described in oxen slaughtered at the Metropolitan Cattle Market, Islington.

2. Recent abattoir statistics indicate an average infestation of about 0·3 per cent. cattle slaughtered in England and Wales during 1949, and there is some evidence to show that the infestation is increasing.

3. The routine examination for *Cysticercus bovis* as laid down in this country is criticised as being insufficient.

4. Freezing at minus 10° C. for a minimum period of 14 days is necessary to ensure that all cysticerci are killed in beef carcases.

5. Medical, veterinary and sanitary authorities should co-operate to the full in the fight to control this disease with its unpleasant sequelae in man.

Acknowledgments.—We would like to thank Mr. R. J. Hayhurst, the Senior Meat Inspector, and all the Meat Inspection Staff at the Metropolitan Cattle Market, for their invaluable contribution to the "mincing" operations. We are also indebted to Mr. H. Thornton, Chief Veterinary Inspector, Newcastle, for his notes on the subject and to Mr. Burgess of the Royal Veterinary College for his excellent photograph.

References

1 McLean, A. (1948.) *Vet. Rec.* **60.** 16.
2 Ostertag, R. "Textbook of Meat Inspection."
3 Stockman, S. (1909.) "A Practical Guide to Meat Inspection (Walley)."
4 Robertson, W. (1920.) "Meat and Food Inspection."
5 Viljoen, N. F. (1937.) *Onderstepoort J. vet. Sci.* **9.** 337-570.

ADDRESSES OF DISEASE-INFECTED PREMISES

The list given below indicates, first, the county in which are situated the premises on which disease has been confirmed, followed by the postal address and date of outbreak.

Swine Fever:

Lancs.—Lawson Road Piggeries, Lawson Road, St. Annes-on-Sea, Lytham St. Annes, Lancs (Aug. 5th); The Cottage, Lower Lane, Longridge, Preston, Lancs (Aug. 7th); Hoole Fold Farm, Barton, Preston, Lancs (Aug. 9th); Roadside Farm, Alston, Longridge, Preston, Lancs (Aug. 9th); Charity Farm, Elston, Grimsargh, Preston (Aug. 12th).

W. Sussex.—Oldbury Pig Farm, Crockers Hill, Boxgrove, Chichester, Sussex (Aug. 10th).

Yorks (E.R.).—De-La-Pole Hospital Farm, Willerby, Hull; Carcase at M. of F. (Co-op.) Slaughterhouse, Gt. Thornton Street, Hull (Aug. 12th).

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Weekly Wisdom

A dissemination of agricultural, economic, and physiological principles and techniques among undernourished peoples is an essential beginning to the establishment of a stable political structure.—"The Lancet."

SOME NOTES ON THE MANAGEMENT OF BULLS IN RELATION TO SEMEN PRODUCTION

(Based on Observations and Experiments made at the Ruthin Cattle Breeding Centre)

BY

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RUTHIN

From the point of view of semen production each bull must be regarded as an individual. Wide variations exist between these individuals, while in the individual animal variations also can exist, but these latter can be controlled by management to a great extent.

From the point of view of feeding the experience at the Ruthin Cattle Breeding Centre, based on all the bulls, is that the first essential is a properly balanced diet, and the second a sufficiency of this diet. The diet used at the Ruthin Cattle Breeding Centre has been based on a 3 to 1 ratio, carbo-hydrate—protein, with *good* hay *ad lib*. It has been our experience that maximum semen production from the point of view of service behaviour, quality and quantity of semen, depends entirely on feeding a sufficient quantity of a balanced diet and cannot be achieved by increasing any single constituent of the diet. The wide individual requirement was shown at its extreme by the fact that one of the bulls, past growing age, to give his maximum production, required 6 lb. of concentrates per day (over a prolonged period this requirement did not vary), while another of the bulls, still growing, required 20 to 25 lb. of concentrates per day to give his maximum production. When the growing period had passed this bull levelled off at a constant daily requirement of 15 lb. It is only by steadily increasing the amount until maximum semen production is maintained and then dropping a little that the individual requirement can be found. Attempts have been made to improve production by high protein feeding. If the bull was getting his full requirement of balanced ration this appeared only to bring about constitutional upset, with scouring as the symptom, and had no effect on the semen production, but when scouring had continued for a few days the quality of the semen deteriorated, the count dropping by as much as 50 per cent. A similar state of affairs obtained when greens were fed, namely, provided the bull was getting sufficient, no change was effected, but when too much greens were fed, again, scouring and fall in semen quality was the outcome. It may be of interest to note here that from observations made over three consecutive years, the semen quality definitely falls off when the bulls are first turned out to new spring grass. An increase in the amount of the ejaculate usually takes place. The motility of the individual sperms is not affected, but the total sperm count, allowing for the increased quantity, drops by anything from 20 per cent. to 50 per cent.: with the majority of the bulls, especially the young bulls, the drop was nearer 50 per cent. We have found that bulls past growing age, maintained on a full ration, tend to get into very good condition—what is often termed "show condition"—and it was frequently suggested that the condition of the bulls tended to be "too good." Because of this, the diet of one bull was reduced from 8 lb. to 4 lb. concentrates per day. The following is a complete and exact history of this bull.

He came to the centre as a 20-month-old bull. He gave semen amounts of 3, 4, or 5 c.c. collected on every fifth, sixth, or seventh day, two ejaculates each collection—the quality of the semen being poor to middling. At the end of about the first four months it was decided that his requirement was 8 lb. of concentrates per day. On this ration, 12 months after his arrival, he was giving 7, 8, 9 c.c. (used every six, seven, or eight days, two ejaculates each collection) and the quality of the semen had definitely improved, but was still indifferent. In an attempt to improve this quality, additional fish meal and/or bone meal was added to his diet over the period of a further 12 months, the amount added varying from time to time and being determined by the tolerance on the part of the bull, but this had no appreciable effect. At the end of two years it was decided to reduce the diet of this bull from 8 lb. to 4 lb. concentrates per day, this being started at the beginning of July, 1948. No effect was noticed until September, 1948, when suspicion arose that the quantity at collection time (two ejaculates) was dropping. Calculation showed it to average 7 c.c. for September. By October this had become 6 c.c. and by November 5 c.c. By February, 1949, the amount was still 5 c.c., but the bull became slow to serve and had lost condition, and towards the end of February the semen quality deteriorated. This deterioration was rapid and by the end of April, 1949, the quality of the semen was very poor indeed. The ration was increased in May, 1949, to 10 lb. The bull improved rapidly in condition and semen quantities rose speedily to 9, 10 and 11 c.c. per collection (two ejaculates) in June, but the semen remained very variable in quality and remains so to this day, slowly tending to improve, however. To summarise, variation in the quantity of the ration did not greatly affect the fertility of the semen until such time as the bull himself showed loss of condition and then fertility of the semen rapidly fell off. Before this stage was reached, however, the quantity of the semen obtained was affected and the sexual behaviour of the bull, *which had previously been consistently good*, became variable. This experiment, if it could be called such, could bear repetition, but the time required is quite prolonged. In general, feeding anything which had a constitutional effect on the bull brought about an immediate effect on the semen, *e.g.*, feeding suddenly increased quantities of protein caused scouring and affected the quality of the semen, but the effect on the semen was as transitory as the constitutional effect. Feeding increased amounts of protein had a beneficial effect on semen production in relation to the general effect (*i.e.*, in animals not getting their maximum daily requirement). A much better effect is obtained by increasing protein as compared with increasing carbo-hydrate. On the whole, feeding the bull to achieve maximum fitness brought about maximum semen production.

The following observations were made on the results of varying the interval of time between collections. Again two ejaculates were taken consistently at each collection. The first general finding is that all the bulls of which I have had experience will stand up to collection at seven-day intervals for as prolonged a period as the opportunity to make observations has so far been available. In the case of some of the bulls this is a period of years. With regard to the two old bulls on the Ruthin Centre, decreasing the rest period between collections (the Gwersyllt bull from seven to five days and the Histon bull from seven to four days) had absolutely no effect. A further decrease, however, very rapidly brought about a disinclination to work, and eventually, periodic refusals to serve. When semen was obtained it was, nevertheless, quite unaffected. This experiment in the case of these two old bulls has been

repeated on several occasions with the same result, the conclusion apparently being that the older bulls simply refused to be overworked. The same conclusion was arrived at as a result of increasing the number of ejaculates at the time of collection from two to four, keeping the rest interval at seven days. Again, no deterioration in the semen was obtained, the bulls simply refusing service. In the case of two young bulls (" Revels Charming Duke " and " Plas-Newydd Whirlwind ") reducing the rest period between collections from seven to four days affected the semen in each case in two months. With these bulls, the keenness to serve did not abate, even towards the end of this experiment. First of all the amounts dropped from an average of 8 c.c. to 3 c.c., while at the end of three months the quality of the semen deteriorated. This deterioration was not rapid but progressive. This experiment was abandoned without any attempt being made to see whether the bulls eventually would be rendered sterile. The bulls were not rested completely, but were given a rest period of ten days between collections. Recovery was fairly rapid and by the end of six weeks was complete, when the bulls were returned to seven-day rest periods. Using the same two bulls, observations were made on the effects of increasing the number of ejaculates taken at each collection from two to four, but keeping the rest period consistent at seven days. After the first month, during which no effect was noticed, the amounts obtained dropped rapidly. In this case, however, the effect on the quality followed very closely behind the effect on the quantity, so that at the end of six weeks the quality definitely had depreciated. In the case of the " Plas-Newydd " bull this experiment was abandoned at this stage and this bull was returned to two ejaculates per collection with ten-day rest periods. It was a full ten weeks, however, in this case, before this bull came back to maximum quantity and quality—quantity being recovered first. At the end of that time the bull was returned to seven-day rest periods. In the case of the " Revels " bull this experiment was continued. The semen quantity remained consistent at about 3 to 5 c.c. per collection, but the quality continued to depreciate, so that at the end of about nine weeks, the semen was for all practical purposes useless. The bull was then returned to two ejaculates per collection, with rest periods of ten days. This was continued for two months without any maintained improvement, although an occasional ejaculate showed signs of improvement. It was then decided to rest the bull completely for one month. At the end of this time the semen showed some improvement, but was still very poor. Collection was resumed, two ejaculates per collection—ten-day rest period—and there was a very slow and variable improvement. The bull was disposed of before the semen had regained its original excellent quality, but some of the final collections made from the bull were up to his old standard and I am certain that complete recovery was only a matter of further time.

To summarise, in the case of younger bulls, decreasing the rest period did have an eventual effect, but this took some time to come about, quantity being the first to suffer, and quality following at an appreciable period later. Increasing the number of ejaculates at collection time brought about a much more rapid depreciation—quantity again being the first to suffer, but depreciation in quality following very rapidly behind this. Recovery from the effects of decreasing the rest period was much more rapid than it was from the effects of increasing the number of ejaculates.

THE COLLECTION OF EARLY VETERINARY WORKS IN THE WELLCOME HISTORICAL MEDICAL LIBRARY

BY

W. J. BISHOP, F.L.A.,

Librarian

In connection with the International Congress of Veterinary Medicine held in London during August, 1949, an exhibition of early printed veterinary works was held at the Wellcome Historical Medical Library, which is now open to the public at 183, Euston Road, N.W.1. The exhibition was visited by many members of the Congress and attracted considerable interest; but as it was only possible to exhibit a small selection from the early veterinary books in the Wellcome Library on this occasion it was thought that a brief note on the scope of the collection might interest readers of *The Veterinary Record*.

Husbandry and animal care have played a vital part in the life of civilised communities, and it is therefore natural that many of the earliest references to the veterinary art are to be found in the writings of encyclopaedists, philosophers and poets, as well as in those of agriculturalists. Aristotle's *History of Animals* is a work full of veterinary interest, and the *Georgics* of Virgil record in immortal verse the popular views of his time on the subject of animal care. The earliest editions of Aristotle in the Wellcome collection are those of 1476, 1492, 1497 and 1498; Virgil is represented by editions printed in 1492 and 1494. One of the most notable monuments of veterinary literature is the anthology, *De re rustica liber*, printed at Rome in 1490 and at Reggio in 1499. These handsome folios contain the writings of the great triumvirate of Roman agriculturalists and veterinarians—Columella, Cato and Varro.

The first Roman writer to produce a work entirely devoted to veterinary medicine was Publius Vegetius Renatus, who flourished about 450 to 500 A.D. We now know that Vegetius drew largely on the observations of the Greeks of his day, especially those of Apsyrtus, who is described by Sir William Smith as the true " father of modern veterinary medicine." The Wellcome Library possesses a fine copy of the first edition of Vegetius, published at Basle in 1528. Another landmark in early veterinary literature is the work of Petrus de Crescentius, a Bolognese physician of the thirteenth century. Crescentius devoted 106 chapters to the diseases of animals and, although much of his matter is copied from Cato, Varro and Columella, as well as from the great work of the much later Sicilian veterinarian, Jordanus Ruffus, his book enjoyed an immense reputation and was translated into nearly every European language. Of this book the Wellcome Library possesses no less than five editions printed before the year 1500.

The total number of writers who contributed to veterinary literature during the sixteenth century is about fifty, and nearly all of these are represented by early editions. At this time many " popular " books were published in the common tongues. These works are mainly compilations from the ancient writers, but some show originality and many are of the greatest interest owing to the fine woodcuts with which they are illustrated. A fine specimen of this class is the German translation of Vegetius, printed at Augsburg in 1532, with its spirited engraved title-page showing the drenching of an ass. Another notable

book is the anonymous German compendium of veterinary medicine entitled *Viehartznei* (Frankfort, 1550), the title-page of which bears a fine woodcut of a farmyard, with horses, cows, pigs, goats, ducks, and hens, a pigeon loft, and beehives. The sixteenth and seventeenth century writers are too numerous to be considered in any detail, but it may be mentioned that the Library possesses the first or very early editions of Gesner, Aldrovandus, Camerarius, Agrippa, Ingrassia, Mascall, Markham, Topsell, Turner, Coracciolo, and the other leading figures.

Some idea of the scope of the Wellcome collection may be gained from the fact that it contains more than four hundred books on the horse. One of the greatest treasures is the book of Agostino Columbre on *The nature of the horse and the cure of its diseases*, first printed at Venice in 1518. Columbre was a veterinarian practising at San Servero, and his book is dedicated to King Ferdinand of Aragon. This is one of the rarest books on the horse, and it is said that Count Ercolani, of the Veterinary School of Turin, who made a special study of Columbre, was unable to consult any edition earlier than 1547. The Library has a very fine copy of the *Hippiatria sive Marescalia* (Paris, 1532) of Laurentius Rusius. This book was first printed in 1486 and is one of the earliest manuals on the horse. The title-page of the 1532 edition has a very spirited representation of a horse, and the text contains some fine woodcut initial letters. The work was largely plagiarised from Ruffus, but came to be of importance because it was freely drawn upon, usually without acknowledgment, by later writers. The Master-Marshal de Lozenne (or Lozeneel) is represented by a copy of his *Médecine pour les chevaulx*, printed about 1550. Carlo Ruini's splendid monograph on the *Anatomy of the Horse* (1599, 1603, 1618) is the first book devoted to the anatomy of an animal and is famous for its truly magnificent illustrations.

Nearly all the great writers on horsemanship are to be found in this collection: particularly worthy of mention are the sumptuously illustrated books of Federigo Grisone (1550), Argote de Molina (1582), Antoine de Pluvinel (1628), the Sieur de Solleysel (1696), and Etienne Lafosse (1760).

The Anatomy of the Horse (1683), by Andrew Snape, "Farrier" to Charles II, is an important work, but is written in a very curious style. The volume contains a portrait frontispiece and a fine copper-plate engraving of horses in a field, beneath which are the following verses:—

In Fields nor Pastures, Woods nor Forests wide,
Does any Beast so noble as this Reside.
His Nostrills raise a Tempest when he blows;
His Feet produce an Earthquake when he goes.
Runs he? the swiftest Winds behind retire,
Whilst from his Eyes flow streams of flaming fire.
Wouldst know his Parts? the following Book peruse,
Which shews of each the Figure, Seat and Use.

There is a copy of Stubb's famous *Anatomy of the Horse* (1766) in its original boards with the label, "Price £4 4s."

In a large collection of rare books on the dog, pride of place must be given to Dr. John Caius' *De canibus Britannicis* (1570), the earliest monograph on the subject. Another notable book is Andrea Cirino's *De natura et solertia canum liber singularis* (Palermo, 1653), which contains some amusing woodcuts.

The institution of the Veterinary College of London with Charles Vial de Sainbel as Professor, in 1791, marks the foundation of scientific veterinary education in England. Sainbel's writings are all in the Wellcome Library, a particularly interesting item being his essay on the proportions of *Eclipse* and on the component parts of the gallop (1791).

The early veterinary books in the Wellcome Historical Medical Library represent only one of the special collections in a library covering the historical aspects of medicine and the sciences and comprising some 200,000 volumes.

The early literature of veterinary medicine is large in its extent and varied in its content. The bibliophile will find pleasure in its beautifully printed books, and the historian can study the evolution of veterinary science in its texts. That many of these rare books have hitherto been inaccessible should be an added incentive to historically minded members of the profession, for, unlike many departments of medical literature, the early veterinary writings have never been fully explored.

CLINICAL COMMUNICATION

A CASE OF BOWEL RESECTION IN THE DOG

F. G. STARTUP, B.Sc., M.R.C.V.S.,
AND
C. M. STARTUP, M.R.C.V.S.,
WORTHING, SUSSEX

Subject.—A mongrel bitch, seven years old. Weight 20 lb.

History.—In October, 1948, this bitch was subjected to an ovarohysterectomy for a closed pyometra, the vagina being severed in the normal way just posterior to the cervix. Subsequent progress was normal.

In February, 1950, she was presented to us with the history of listlessness, inappetence and occasional vomiting.

Examination.—There were no objective symptoms with the exception of a roughly spherical, hard tumour-like mass which was palpated just anterior to the pelvic brim.

The bitch was re-examined in 24 hours' time—the mass was still in the same position and a tentative diagnosis of a neoplastic condition of the stump of the vagina was made. An exploratory laparotomy was advised.

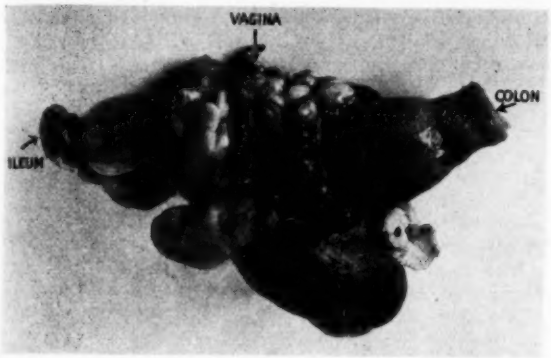
Operative Procedure.—The bitch was anaesthetised by intravenous nembutal and coramine.

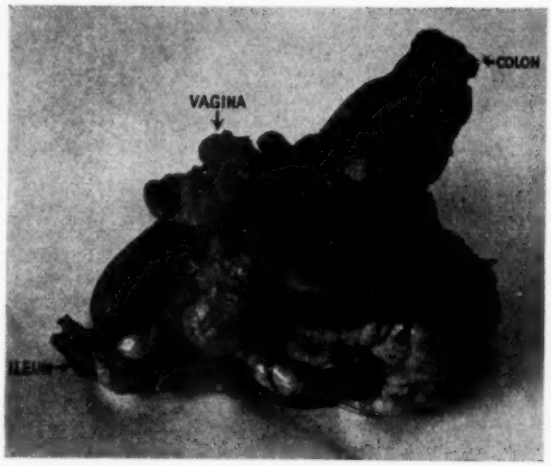
A mid-line incision was made extending from the umbilicus to the brim of the pelvis. On exploring the abdominal cavity it was found that the stump of the vagina was adherent to the bowel at the ileo-caecal junction, the "mass" being composed of several loops of adherent ileum and colon. It was found impossible to break down the adhesions and it was decided to perform an enterectomy.

The vagina was ligated, severed and separated from the adhesions. The free ends of the intestines were clamped and severed, and the adherent mass of bowel was dissected from the mesentery and removed.

It was impossible to perform an end-to-end anastomosis between the severed ends because of the discrepancy in the diameter of the two portions, one part being small intestine and the other colon. These two ends were invaginated and fixed by a double row of continuous Lembert sutures, and a lateral anastomosis between these two portions was performed, using the orthodox technique. The abdomen was then closed, sterile proflavin and sulphathiazole powder being applied at each suture layer.

One hundred thousand units of penicillin in 5 c.c. sterile saline was injected into the abdominal cavity. Glucose saline was given intravenously (500 c.c.). One c.c. of procaine penicillin (300,000 units) was given intramuscularly.





Post-operative Course.—Recovery from the nembutal was slow, but within 24 hours the bitch was able to take a small quantity of glucose in milk.

Procaine-penicillin was continued at 24 hourly intervals for six days, and glucose saline was given intravenously every 12 hours for two days.

By the end of the third day the bitch was walking about, taking liquid nourishment and passing frequent amounts of urine. A small amount of faeces was passed 48 hours after the operation, but no further bowel action occurred until the sixth post-operative day; from then on bowel action was normal.

There was considerable abdominal pain for the first few days after the operation, but this was controlled completely by pethidine given in doses of 100 mg. every eight hours. The skin sutures were removed on the seventh post-operative day and the patient was sent home.

She was allowed liquid foods only for 14 days and then gradually brought back to normal diet. From that time progress has been completely uneventful.

NOTES

1. This case is particularly interesting because of the rarity of the condition. Although the operation of hysterectomy is commonly performed in bitches, we are unable to find any other report of significant adhesions forming between the severed vagina and the intestines.

2. The use of pethidine to control post-operative abdominal pain is worthy of note.

Our thanks are due to Mr. H. E. Hinings, who kindly took the photographs.

THE VETERINARY RECORD
AUGUST 19, 1950

HUMAN HEALTH AND THE ERADICATION OF TUBERCULOSIS

FOR some months *The Veterinary Record* has carried correspondence on the merits of eradicating tuberculosis from our dairy herds. The value of this from the agricultural standpoint is beyond dispute; it is evident, however, that there is now an awakening of interest in the control of human tuberculosis.[1] In this correspondence it has been suggested that some hypothetical immunising substance for the human subject is present in pasteurised milk from tuberculous cows, which is not contained in milk from tubercle-free herds. It must be emphasised that there is no experimental or epidemiological evidence to support such a view. Some evidence is available that if the human population contracts a mild alimentary infection at an early age, it becomes at a later stage less susceptible to pulmonary tuberculosis. It is argued that this early "premunisation" is not given a chance to develop when tubercle-free milk is consumed, but this must be equally true of properly pasteurised milk from tuberculous cows. It has long been known that tubercle bacilli in milk kill or disable a large number of children and the medical profession categorically has rejected tuberculous milk as an immunising, or, more correctly, "premunising" agent. We would agree entirely with this attitude.

Recently, Dr. Charles Hill has questioned the Minister of Health about the supply of B.C.G. vaccine for immunising children and others exposed to grave risks of contracting tuberculosis from human sources, and at the annual Congress of the British Medical Association, which met recently at Liverpool, the problem of evolving a sound system of prophylaxis against human tuberculosis was discussed earnestly and at length. Dr. C. O. Stallybrass, speaking to a public audience, called for a new national effort to eradicate tuberculosis, backed by a strong lead from the Ministry of Health. "It was clear," Dr. Stallybrass said, "that ascertainment of tuberculosis was a first necessity, just as it was with smallpox. In smallpox we spared no effort to trace the source of infection in every case. Mere ascertainment, however, without other measures of combat would achieve nothing." "Secondly," he continued, "there was need for isolation and treatment. The amount of sanatorium accommodation which appeared to be adequate before the war was now inadequate. The long waiting lists for hospital treatment were in the highest degree tragic." "Finally," he said, "there was immunisation—or perhaps 'premunisation' was a better word, implying immunisation before contact or before infection. There was a great advantage in premunising the children of tuberculous parents, or, for that matter, grandparents, as soon as they were born. An immense field of prevention opened with the availability of B.C.G. But there could be little doubt that this country was falling behind in its anti-tuberculosis campaign, particularly behind the Scandinavian countries and such small island territories as Iceland and the Faroe Islands; Northern Ireland was ahead of Great Britain; Scotland fell behind."

The bovine and human problems differ greatly both from the aetiological and ecological standpoints; nevertheless, there is every good reason for contending that the policy of totally eradicating bovine tuberculosis should be actively pursued. It is beyond doubt that total eradication of the bovine disease will improve nutrition and prevent com-

pletely the danger of bovine type infection in man: the danger of direct infection between man and cattle is not sufficiently appreciated. The enormous benefits that will accrue to the stock owners of this country from the elimination of perhaps the worst remaining insidious infectious disease of our cattle herds, with all that it has meant for several generations in morbidity and depreciation in their economic value, can never be over stressed by the veterinary profession.

We are glad to note that the details of the area eradication scheme have now been settled[2] and we feel sure that it will have the full support of the profession.

[1] *Brit. Med. J.* (1950.) ii. 92.
[2] *Vet. Rec.* (1950.) **62.** 400.

ABSTRACTS

[Hepatic Changes in Young Pigs Reared in a Cold and Damp Environment. Napthalin, J. M., & Howie, J. W. (1949.) *J. Path.* & *Bact.* **61.** 319.]

Howie and co-workers at the Rowett Research Institute have been investigating the reasons for the ill-health among young pigs farrowed and reared indoors, and their experiments [Howie, J. W., *et al.* (1949.) *J. Agric. Sci.* **39.** 110] suggested that the main cause of the trouble was that the buildings used were too cold, damp and draughty, the superior health of pigs farrowed and reared out of doors appearing to depend less on their access to iron or unknown nutrients in soil or grasses than on the greater comfort of their wooden ark huts. It was shown that the complete clinical and pathological sequence of events, which was similar to that attributed by M'Gowan [J. P. (1924.) *J. Path. Bact.* **27.** 201] to iron-deficiency anaemia in suckling pigs, could not be prevented by giving large doses of iron *per os* unless a warm dry and comfortable environment was provided also.

In the present paper, experiments are described which were carried out to study the liver lesions occurring in young pigs reared indoors in a cold and damp environment, these lesions being compared with those described by M'Gowan. Piglets born during the cold months from October 1948 to March 1949 were allocated to one of three groups. In group 1 they were housed in an open pen in a cold, draughty and often damp byre, with only a limited amount of straw for bedding and a non-insulated floor; in group 2 the pigs were in an indoor run within the same byre as group 1, but warm shelter was provided by a wooden ark hut or an electric hoover; in group 3 the piglets were provided with a wooden ark hut, but also had an outdoor concrete run. All the piglets were given 1·0 gramme of reduced iron by mouth on the 3rd, 10th and 17th days of life, an amount which is enough to prevent the fall of haemoglobin to anaemic levels in comfortably housed pigs. Sixteen of 30 pigs in group 1 died, as did five of 21 in group 2, but no deaths occurred among the 16 pigs in group 3.

Clinically, the pigs in group 1 were unwilling to eat the solid food offered from about the 17th day of life; they were listless and apathetic, lay pressed in a tight cluster, and seemed to prefer to lie on top of their fellows. Their growth rate was very variable. They developed humping of the back, and there was abdominal distension due to the presence of ascitic fluid or organising effusion; their hair grew long, rough and curly and lacked lustre, and the tips of their ears were often blue. Many of the animals had intermittent diarrhoea, although no pathogenic organisms were recoverable. Those animals that died either did so suddenly after exertion, having shown a sudden development of spasmodic breathing and cardiac over-action, or else they became increasingly listless, with cold and clammy skins, shallow respirations, and gradual loss of consciousness; death followed in 12 to 36 hours.

The only two constant pathological findings were the presence of ascitic fluid or peritoneal adhesions, and of gross changes in the liver. The latter organ was usually enlarged, and showed a dark purple colour, with irregularly distributed pale ischaemic or fatty areas. The lobules were enlarged, the cut surface having a typical "nutmeg liver" appearance. In pigs dying in later stages of the disease, there was a gradual fibrosis of the liver.

The lesions in these experimental pigs were essentially the same as those described by M'Gowan. While the pathogenesis of the condition needs further elucidation, it is suggested that the cold environment may have acted by raising the venous pressure by constricting peripheral vessels, or, in view of the absence from most of the pigs of chronic venous congestion in organs other than the liver, that there may have been some derangement of the blood flow through the liver itself, possibly following the application of cold directly to the abdomen as in a pig lying on a damp non-insulated floor. At present, the main importance of the observations appears to be that the lesions noted—which are essentially those of nutmeg liver and its sequelae—should no longer be attributed to iron deficiency, and are to be looked on as being in some way related to prolonged exposure to a cold environment.

E. C.

* * * * *

[Successful Reduction of Diaphragmatic Hernia Without Use of Respiratory Equipment. Bredhenner, J. W. (1949.) *Vet. med.* **44.** 515–516.]

A five-month-old collie dog sustained a rupture of the diaphragm through a street accident. Under nembutal anaesthesia the abdomen was opened and some herniated intestine withdrawn through the diaphragm, the opening being occluded immediately by the operator's finger until it could be secured by artery forceps pending suturing, which was done by a double row of chromic catgut Lembert sutures. On completion air was withdrawn from the thorax by a syringe and needle stabbed through the diaphragm. The abdominal opening was then sutured.

Recovery was good. The dog breathed with some difficulty during the first four days only and thereafter quickly regained its health.

J. E.

"THE ECONOMIC POSITION OF THE SCIENTIFIC WORKER"

In a 24-page booklet issued by the Association of Scientific Workers, entitled "The Economic Position of the Scientific Worker," a detailed and statistical analysis of the salaries paid to scientists and their assistants has been made.

The booklet examines the salaries paid to the qualified scientific and technical staff, of university degree standard, in the various fields where such workers are employed. Figures are quoted with the object of showing that the salaries of these scientists are, at all age levels, far below those regarded as normal for other professional workers of comparable attainments. It is claimed that the data given refute the argument that scientists in industry can command much higher salaries than in the Civil Service, in the Universities, or in other establishments where definite scales are laid down. Comprehensive appendices give details of the salary scales at present operating in the Civil Service, in Technical Colleges, in Universities, and in the National Health Service. A strong case is made out for the acceptance of negotiated salary scales in industry, and various scales which the A.Sc.W. has proposed as minima are reprinted here.

This pamphlet is available from The Association of Scientific Workers, 15, Half Moon Street, Piccadilly, W.1, price 6d.

REVIEW

[**Biological Actions of Sex Hormones.** By HAROLD BURROWS, C.B.E., PH.D., F.R.C.S. Second edition. Published by the Cambridge University Press, December, 1949. Price 42s.]

The second edition of this comprehensive volume of some 600 pages has been entirely revised and re-set. It remains one of the most useful books, although the text does not include the latest research results and is slightly out of date. This is perhaps unfortunate at this time as much important work has been published in the last year or two.

The book is divided into six main parts dealing respectively with Gonadotrophins of the Pituitary and Placenta; Gonadal Hormones; Androgens; Oestrogens; Progestins; and Sex Hormones of the Adrenal Cortex. Clearly this covers many fields of importance to veterinary practice, but it is doubtful whether the book is suitable to the busy practitioner. It is more a book for the research worker and specialist. The book can act as a valuable corrective to "shot in the dark" therapy or to an over-simplification of the inter-relationship of hormones and in sex physiology.

The book is well produced, and the type and paper are such as make it easy to read—a not unimportant point in these days of all too common small print and glossy paper.

Two useful appendices on the international units of sex hormone activity and the preparations and synonyms of sex hormones are included, as also is a long list of references to original scientific papers.

QUESTIONS AND ANSWERS

The submission of questions for inclusion in this column will be welcomed; they can relate to any aspect of veterinary work. For purposes of record, each question is numbered, and those submitting questions are required to furnish (not for publication) name and address. It is regretted that consideration cannot be given to questions for which solely a private reply is required.

Answers to readers' queries represent exclusively the personal opinions of the writers, and criticism of the replies will be appreciated.

All communications should be addressed to the Editor.

Rickets in a Thoroughbred Yearling

Q. 362.—*Could you favour me with a definite diagnosis in the following case?*

[We print the following case history, etc., as being essential to the preparation and understanding of the answer, but would remind contributors that details relating to a question should be reduced to the essential minimum.—*Editor.*]

Subject.—*Bay thoroughbred colt.*

History.—*Foaled June*, 1949. *At birth, both carpal joints appeared weak, resulting in an extremely "knock-kneed" appearance, with slight flexion of the carpal joints. Movement was awkward and frequently resulted in actual knocking together of the knees.*

Both sire and dam showed no abnormality. During pregnancy the mare had been on land known not to be lime deficient and had been given a good ration of seed hay and oats during the winter. At foaling, and throughout pregnancy, the mare had been in good condition though rather fat.

Diagnosis.—*A tentative diagnosis of weakness of the medial collateral carpal ligaments was made and it was hoped that the condition would improve spontaneously.*

Subsequent Course.—*During the year the condition of the limbs has varied extremely. The off fore limb has always shown the greater deformity. A course of Tonophosphan (Bayer) at three months appeared to cause some improvement but enlargements were developing on the radial epiphyses and a partial anchylosis of the right carpus was noted.*

The condition remained unchanged throughout the winter and by April, 1950, there was slight improvement and the colt was not lame. He was turned out with another yearling and was able to gallop as well as the sound colt, but after a few days he became lame again and spent a great deal of time lying down. A course of Vigantol (Bayer) and calcium gluconate, daily brought about some improvement. The epiphyseal enlargements were less and the colt moved better. The deformity was less noticeable after a night's rest but was worse after being outside all day.

After two weeks it was seen that the colt was not maintaining this improvement and the near fore, which had been almost normal for six months, was reverting to the state it was in at birth and again the knees were actually knocking together when the colt walked.

Remarks.—*Although it is fully realised that the prognosis is extremely bad, it is felt that as the condition is variable, it might still be possible to effect an improvement. I am particularly anxious to have a definite diagnosis, as the mare has again been covered this year.*

It is perhaps significant that although the yearling is well grown, and normal in all respects except the fore limbs, it is lacking in "bloom" and does not look as well as it should on the very generous rations which it has been receiving.

A.—This is a case of rickets. Quite a number of foals are born with very weak and oddly bent knees and hock joints but they tighten up and become normal in a few days unless their intake of minerals and vitamins is deficient. Treatment is not likely to effect a cure in this case in view of the long-standing deformities, but some considerable improvement can be obtained in many cases if bone formation is still active, that is until three years of age.

Treatment, which is both curative and prophylactic, consists of an ample supply of vitamin D and daily doses of a mineral mixture of bone flour, calcium carbonate and the trace elements. Combined with good management, particularly as regards feeding and exercise, this should prevent further cases arising.

The case described in the question is an extreme one, but many foals suffer from sub-clinical rickets, no clear symptoms arising until, for instance, the knee joints become enlarged in training as two year olds. The raising of healthy thoroughbred foals in this country is made very difficult by the inclement weather and the lack of sunshine. A general acceptance of the necessity of feeding vitamins and minerals to brood mares and foals would be a great contribution to the maintenance of good health and would help to reduce the incidence of rickets and of many other ailments of foals and young stock. The robust health of British babies, the envy of the world, is very largely due to the now general use of cod-liver oil and orange juice from a very early age. It has only recently been realised both in medical and veterinary practice that high dosage of vitamin D for the new-born is necessary to maintain an optimum condition of health.

. . . . .

Tumour on the Gum in a Bull Terrier Bitch

Q. 363.—*A six-year-old bull terrier bitch has a tumour on the upper gum which is now about half an inch across, protrudes about three-eighths of an inch and extends back on the hard palate for an inch. When first noticed, the tumour was the size of a pea and bleeding profusely. Two applications of a silver nitrate pencil checked the haemorrhage, which has not recurred. I feel that surgical interference would be useless and would like to know if any other form of treatment would be likely to succeed.*

A.—Without knowing the region of the gum affected by

the tumour, *i.e.*, whether in the incisor or molar area, it is difficult to postulate a diagnosis and therefore treatment.

If the lesion were in the incisor region it would probably be in the nature of a fibrous epulis, but the fact that it is invading the hard palate and also that there was a tendency to haemorrhage in the early stage suggests malignancy, so that the tumour probably involves the molar region. Malignant tumours of the gum and hard palate are often of the osteo-sarcoma type and surgical treatment is, as the questioner observes, unlikely to be of any avail. A biopsy might be taken and the material passed on to a pathologist locally for histological diagnosis: a benign tumour might be removed surgically with some hope of success. X-ray therapy would probably be valuable if this were available but the respondent realises this is improbable and cannot offer any other practicable suggestion for treatment.

* * * * *

Correspondence

Hunter Mare Diagnosis Enquiry

Sir,—Query 358 (*Vet. Rec.* **62.** 397): My confrere in his final sentence solicits the opinion of his colleagues.

I would ask him to reinspect this hunter mare unless he is amply satisfied on the point.

My first step would be to look carefully for signs of the eruption of a *wolf's tooth* (adventitious molar in front of the first molar). If present, extract at the earliest opportunity.

Yours faithfully,

22, Ewell Road, F. W. Chamberlain.
Cheam, Surrey.
July 8th, 1950.

"DAIRY COW FACED WITH COMPETITION"

Importance of the Proven Bull

That the dairy cow is going to be faced with competition in future was a dictum presented to a recent meeting at the Hampshire Cattle Breeders' Society A.I. Centre at Lyndhurst by Professor G. W. Salisbury, head of the Department of Dairy Science in the University of Illinois. People, he said, were working in laboratories on the proposition of getting rid of the dairy cow. They had produced meat substitutes from yeast, and substitutes as high in vitamins and proteins as milk. The answer was the proven bull—to find good bulls and use them to their maximum. There were 48 agricultural experimental stations in the United States and all breeding methods were being tested. By putting the progeny of proven sires on the progeny of proven sires, generation after generation, they had raised the average production of their dairy cattle higher than ever before.

Mr. J. F. Edgar, chairman of the Bull Selection Committee, said their policy was to use mostly proven bulls, and the committee rarely purchased a bull without having seen his progeny in production and their first full lactation records.

Mr. Joseph Edwards, Chief of the Production Division of the Milk Marketing Board, said that the taking over of milk recording by the Milk Board meant that records were now centralised and they were able to find the best bulls. But because of the effect of environment it would be some time before they could see how much of a bull's reputation was due to feeding and how much to management. With a high proportion of progeny-tested bulls they were working on the right lines. Professor Lush, the American geneticist, had said that he could suggest no improvement on our present methods of finding bulls for A.I.

Professor T. Dalling, Chief Veterinary Officer of the Ministry of Agriculture, said that A.I., a young organisation, was going to be successful, but needed a testing period to find the best ways to apply it. More must be done to improve the health of our cattle. "Selection of bulls for A.I. is a lengthy process," he said, "because we must be satisfied that they will not transmit any conditions which will interfere with the health of their progeny."

NATIONAL VETERINARY MEDICAL ASSOCIATION OF GREAT BRITAIN AND IRELAND

Report of Sub-Committee on Disposal of Animal Carcases

We reproduce below the report of a Sub-Committee appointed by the Parliamentary and Public Relations Committee, N.V.M.A., to consider present measures for the disposal of animal carcases and make recommendations for increasing their scope and efficiency.

This report was adopted by the Council of the Association at its meeting on July 14th and ordered to be published in the "open" columns of *The Veterinary Record*. It was agreed, further, that an appropriate letter should be sent to the Ministry of Agriculture drawing their attention to the report and its conclusions, and offering to have discussions with the Ministry on the subject.

Following is the text of the report.

The rapid and effective disposal of the bodies of dead or dying animals, though mainly a concern of the farmer and the veterinary surgeon, is not without importance to the community as a whole. For not only are decaying carcases offensive to the senses and fraught with possible dangers to public as well as animal health, but, since they represent a potential source of foodstuffs and fertilisers, failure to deal with them adequately involves the community in considerable economic loss. It is surprising, therefore, to find the relatively small amount of interest taken in the knackery trade in this country, both from the industrial and from the legislative viewpoint.

The correspondence in *The Veterinary Record*, which this Sub-Committee was asked to consider, made two main allegations against knacker yards in this country; firstly, that they were insanitary and inefficient, and, secondly, that they involved a wastage of much potential information on animal disease. In our opinion these allegations are in general only too true, the conditions in many cases being absolutely disgraceful. Many knacker yards are not only run under the most unhygienic conditions, but are at the same time badly staffed and ill-equipped for the tasks they undertake. And, although most knackers do co-operate in varying degree with members of the profession by allowing some facilities for *post-mortem* examinations, the present organisation (or rather lack of it) renders it practically impossible to collect statistics of any value on disease incidence, whilst much pathological material useful for both education and research inevitably is wasted.

According to the Chairman of the Licensed Horse Slaughterers' Association,* there were some 190 knackers' yards in England and Wales before the war, whilst by 1949 the number had grown to over 400. The increase is largely due to war-time conditions and especially to the fact that ordinary butchers' meat is not available for animal feeding. This has resulted in a marked increase in the demand for knackers' meat, which the available supplies are still unable to satisfy.

Knackeries vary from large concerns with modern equipment to the small one-man business which sells such flesh as it can direct to the public and disposes of the remainder to some processing plant. It is only too obvious that in many cases knackers are more concerned with such immediate profits as can be made than with the creation of an efficient disposal service, and as a result conditions of

* *Vet. Rec.* **61.** 84.

working are often such as to attract only the poorest type of labour, whilst the industry suffers seriously from lack of capital investment. Furthermore, there appears often to be considerable waste of material which could be processed and much of the nuisance caused by knackeries is due to inefficient storage or unsatisfactory disposal of such material.

It would seem that this unsatisfactory state of affairs is largely associated with the activities of those concerns, mainly small, which are interested only in the sale of flesh as providing a large profit on quick turnover. Such small businesses can handle only a limited number of carcases and as profit is their sole consideration there is a temptation to operate in illegal activities as recent prosecutions have demonstrated. This type of knackerman is not interested in the disposal of carcases other than those which suit his immediate purposes, nor is he interested in co-operation with the veterinary profession. Moreover, as he keeps little in the way of records or statistics and has few, if any, administrative staff, he may be able to pay higher prices for his raw material than those larger companies whose business is above board and who are providing a comprehensive and efficient disposal service. Thus, not only is his own business wasteful from the point of view of the national economy in that inadequate use is made of part of the raw material he acquires (which all too often accumulates about his premises to the detriment of the amenities), but also his activities tend to interfere with the profitable working of those other concerns which are providing an efficient service to the community.

Knackeries are to a certain extent controlled by the Protection of Animals Acts and by the Food and Drugs Act, 1938 (or in the case of Scotland the Public Health (Scotland) Act, 1897). Licensing of knackeries is in the hands of local authorities, whose main responsibility is to see that they are kept in a sanitary condition and that there is no cruelty to the animals concerned. The Ministry of Food is also responsible, under the Livestock (Restriction on Slaughtering) Order, for seeing that flesh unfit for human consumption is appropriately marked. It is obvious, however, that there is great variation in the efficiency with which existing legislation is administered and apparently it is nobody's concern to ensure that the job is being done thoroughly or that the optimum service is rendered to the community.

There is no doubt that increased efficiency and thoroughness in the disposal of animal carcases would result in some increase in the supply of valuable raw material, such as tallow, animal foodstuffs, fertilisers, etc., and this in turn might help to make us somewhat less dependent on foreign imports. It is, however, well-nigh impossible to give any reliable estimate of the likely savings, as there are no accurate statistics available as to present output, whilst any estimates as to total output possible must be very approximate indeed. However, if the extraction rate achieved in a large city abattoir disposal plant (Table I) were to apply to all the raw material left following slaughter of animals for human food (Table II), there should be available at least 14,000 tons meat and bone meal, 3,000 tons blood meal, 8,000 tons tallow and 7,000 tons horn meal, etc., worth in all about £1,000,000 at present prices. It is rather more difficult to give any estimate of possible output from knackeries, but if the figures quoted in continental literature be applicable to the animal population of this country (Table III), it would seem that some 50,000 tons of salvageable material would be available, yielding products worth nearly £500,000. In view of the present shortage of raw materials it would seem reasonable to suppose that a large proportion of this material is already being utilised and any savings as a result of increased efficiency cannot, therefore, be of tremendous monetary value, though they may, nevertheless, be of appreciable "dollar-saving" significance.

Correspondents in *The Veterinary Record* suggested many remedies, ranging from reorganisation within the industry itself to the setting up of State Disposal Centres under veterinary supervision. Whatever organisation is favoured, however, the main aim in view should be to get the task carried out promptly and efficiently with the minimum of danger and inconvenience to the community. At the same time, provided it is done properly, the operator is entitled to feel secure that he will not suffer such competition by so many similar concerns as to render the operation of his plant uneconomic.

The most pressing need is for the tightening up of licensing conditions. There should be much more strict enforcement of sanitary requirements in the granting and renewing of licences and these requirements should be extended to cover the transport of carcases as well as the knackery proper. In our view, moreover, conditions of getting and retaining licences should include the provision of satisfactory working conditions and the possession and proper use of efficient processing plant.

It would be to the benefit of the industry and of the community if no licence were granted to a prospective knacker unless there was proved need for a knackery in the district concerned. Consideration should be given to the possibility of fixing areas for knackeries to operate and charges to the agricultural community might well be standardised within these areas in consultation with the parties interested. It should be a condition of any licence that carcases must be collected on request within a reasonable period; and while dealing with the carcases of small animals like dogs and cats may not be a very lucrative proposition, knackeries might well be expected to dispose of any such brought to them.

In our opinion the knackery trade should be divorced completely from the business of killing horses for human consumption, as the combination renders it only too easy to transfer material from one premises to the other. The question of combination with abattoirs is, however, rather different, as these are no longer in the hands of private individuals and many already have disposal plants. We see no fundamental objection to knackeries being run in association with centralised public slaughterhouses which are equipped with I.W.E.L. plants, provided there was adequate veterinary supervision and satisfactory arrangements were made to ensure that there was no transfer of material and no risk of contamination of human food. In the case of slaughterhouses with no disposal plants we would urge that arrangements be made for all waste and condemned material to be sent to knackeries for processing, as this would aid the economy of the trade greatly and increase the amount of animal food available. It is desirable, however, in view of possible dangers to human and animal health from contaminated material leaving knackeries, that all flesh should be adequately cooked or otherwise sterilised before leaving the premises, although some provision might be made for the supply of raw meat to institutions such as Zoological Gardens.

Veterinary supervision of knackeries is highly desirable from the standpoint of both health and efficiency and would assist in the control of scheduled disease by closing one loop-hole where delay or failure in diagnosis may occur. It would also facilitate the collection of pathological material of considerable value for both teaching and research and

the obtaining of data on the incidence of animal disease. Under the present system a full-time veterinary service in knackeries would be uneconomic, while part-time inspection would be difficult to arrange. There is no doubt that the relatively few larger concerns would offer practical help and service to the profession; in the main they keep proper records which are available for inspection and reference and with them some degree of veterinary supervision would be practicable. The difficulty would be mainly with the large number of small concerns, who form the bulk of the members of the official trade association. We would suggest that an attempt might be made by the Animal Health Division to arrange for routine inspection and to enlist the support of managements and staffs of knackeries in a co-operative effort to collect information and improve efficiency. Only in a much better organised industry, however, would any really comprehensive veterinary supervision be possible.

Summary

The Sub-Committee endorses the view that knackeries in this country are often insanitary and inefficient, resulting in a wastage of animal foodstuffs and fertilisers and also of valuable information on animal disease.

This would appear to be due mainly to the fact that many knackeries are poorly staffed and equipped. Concentration of the industry in the hands of efficient concerns is, therefore, imperative if conditions are to be improved. Veterinary supervision of knackeries is also essential if maximum use is to be made of the material and information available.

Present legislation is inadequate to deal with the situation. The Sub-Committee, therefore, recommends that the Government be urged to set up a committee of enquiry to survey the existing position and to make recommendations for the future of the industry.

APPENDIX

TABLE I

LARGE CITY ABATTOIR STATISTICS

A. Output of by-products plant (tons)

Year	Meat and bone meal	Blood meal	Tallow	Horn meal, parings, etc.	Gross income
1946–47 ...	185	40	94	90	£9,546
1947–48 ...	133	30	85	80	9,343
1948–49 ...	118	30	91	50	11,014

B. Number of animals slaughtered

Year	Cattle	Calves	Sheep	Pigs
1946–47 ...	25,440	8,669	140,914	7,985
1947–48 ...	23,155	5,751	99,199	5,943
1948–49 ...	19,134	2,929	122,381	7,726

TABLE II

ANIMALS PURCHASED FOR SLAUGHTER ANNUALLY IN UNITED KINGDOM

(In thousands) (Annual Abstract of Statistics, Table 192)

Year	Cattle	Calves	Sheep	Pigs
1946 ...	2,030	1,481	7,399	2,137
1947 ...	1,880	1,352	5,512	1,574
1948 ...	1,779	1,305	5,934	1,894

i.e., over 100 times the amount in Table I—B.

TABLE III

ESTIMATED KNACKERY YIELDS

	Population (approx.)	Casualties* %	Numbers†	Average slaughter weight (kg.)	Total salvageable‡ material (tons)
	(a)	(b)	(c)	(d)	(e)
Cattle	7,500,000	1	75,000	350	26,000
Calves	2,000,000	10	200,000	40	8,000
Horses	600,000	4	24,000	350	8,000
Foals	17,000	7	1,100	50	50
Pigs	2,150,000	2	43,000	100	4,200
Sheep	18,000,000	1·5	270,000	30	8,000
					54,250§

NOTES:

* Figure likely to be available to knackeries. Taken largely from continental literature.

† $c = \frac{a \times b}{100}$

‡ Derived from columns (c) and (d).

§ While present demand for dog meat continues, approximately 10 per cent. of salvageable material from cattle and 70 per cent. from horses might be expected to go in this category, leaving a net figure of some 45,000 tons.

NOTES AND NEWS

Diary of Events

Sept. 3rd–8th.—Sixty-eighth Annual Meeting and Congress of the National Veterinary Medical Association, at Cardiff.

Sept. 7th.—Annual General Meeting of the V.V.B.F. Ladies' Guild at Cardiff (City Hall), 10.30 a.m.

Sept. 15th.—Meeting of the Southern Counties Division, N.V.M.A., at Southampton (Polygon Hotel), 6 p.m.

Sept. 28th.—Summer Meeting of the East Midlands Division, N.V.M.A., at Thurgarton, Notts. (See Notices)

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Recognition of Bristol University Veterinary Degree

In our issue of July 29th we published the first order, which related to the recognition of Liverpool University Veterinary Degree, to be made by the Privy Council under section 1 of the Veterinary Surgeons Act, 1948, and intimated that a similar order was expected very shortly in favour of the University of Bristol. This order—The Veterinary Surgeons (University Degrees) (Bristol) Order of Council, 1950—has now been made, the date of its operation being August 2nd. We may recapitulate that the effect of such orders is that in the future students of the University Veterinary School concerned will be entitled to be registered on the Register of Veterinary Surgeons if they have obtained the degree of the University and without any necessity to take the examinations for the diploma of membership, R.C.V.S. The safeguards as to the standard of the degree and of the teaching therefor were set out fully in our earlier note.

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Schemes for the Control of Diseases of Dairy Cattle

The Ministry of Agriculture and Fisheries, on August 10th, made the following announcement, covering points relating to the decision to discontinue the schemes for the control of diseases of dairy cattle with which our readers already will be acquainted, through the medium of these columns.

The Ministry has been considering with the National Farmers' Unions of England and Wales and Scotland, and the National Veterinary Medical Association, the future of the schemes for the

control of diseases of dairy cattle which were sponsored jointly by them. The scheme for England and Wales was introduced in June, 1942, and the Scottish scheme (which was on identical lines) in October, 1942. The purpose of the schemes was to reduce losses due to disease by encouraging close co-operation between farmers and veterinary surgeons on disease problems. The main feature of the schemes was to provide a model form of undertaking between a farmer and his veterinary surgeon whereby the latter undertook, for an annual fee based on the number of animals in the herd, to make routine quarterly visits to the farm and any additional visits necessary to control in the herd, by approved methods, any of the diseases covered by the schemes. The Ministry provided certain services free or at a low cost for persons with undertakings registered under the schemes.

The schemes were never very widely taken up, partly, no doubt, because the form of undertaking prescribed could not be applicable to all conditions. Moreover, with the progress of veterinary science, some of the methods and treatments approved in 1942 are no longer recommended as the best available, and others are now provided more conveniently under other arrangements. Consequently the number of undertakings registered under the schemes has dropped to a very low figure, and the parties to them have come to the conclusion that no good purpose would be served by continuing the schemes.

The Ministry will accordingly accept no further undertakings for registration after September 30th, 1950, but all undertakings received on or before that date will, of course, be honoured until they expire.

Although the number of undertakings registered under the schemes has never been very large, they have led to a wide appreciation of the value of the close co-operation between farmers and veterinary surgeons and the preventive aspects of disease control that they were designed to foster. A great many private agreements have been made, based on the form of undertaking specified in the schemes, but adapted to the needs of individual farms. The Ministry, the National Veterinary Medical Association and the National Farmers' Unions wish to emphasise the value of such agreements (which generally provide for certain routine attention to be given to the whole herd for a fixed annual fee) as a means of keeping herds healthy and productive. They strongly recommend farmers and veterinary surgeons who have such agreements to continue them, and other farmers to discuss with their veterinary surgeons whether the making of such agreements would not be to their mutual advantage.

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Dr. I. Clunies Ross

Our readers will note with interest that the Chairman of the conference held in London from June 21st to July 14th to review the work of the Commonwealth Agricultural Bureaux organisation (reported in another column) was Dr. I. Clunies Ross, the well-known Australian veterinarian.

Dr. Clunies Ross has had an exceedingly brilliant career. He graduated from the Sydney Veterinary College in the early 1920s and shortly after paid a visit to this country. In 1926 he joined the staff of the Division of Animal Health, Council for Scientific and Industrial Research, Australia. Later he was appointed Officer-in-Charge of the McMaster Animal Health Laboratory. In 1936, in collaboration with Dr. H. McL. Gordon, he published the well-known book on the parasites of sheep.

Some time before the late war he left this post to become Chairman of the International Wool Secretariat in London. His next appointment was Professor of Veterinary Science in the University of Sydney.

In 1949 the Council for Scientific and Industrial Research was reorganised and renamed the Commonwealth Scientific and Industrial Research Organisation, Australia, and Dr. Clunies Ross succeeded Sir David Rivett in the exalted position of Chairman, this being a whole-time occupation. This organisation controls Australian federal research other than medical and its last report shows a budget of over £1,500,000.

Dr. Clunies Ross had added greatly to the prestige of the veterinary profession and all in this country wish him well in his new sphere.

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PERSONAL

Appointment.—The following first appointment in the Colonial Veterinary Service is announced: Mr. P. N. Banks, B.Sc., M.R.C.V.S., as Veterinary Officer, Tanganyika.

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Birth.—Sellers.—On August 3rd, 1950, at Cambridge, to Ruth, wife of K. C. Sellers, a son.

Death.—Fox.—On August 12th, 1950, at 2, Beaconsfield Road, Knowle, Bristol, after a long illness bravely borne, Angela, beloved wife of John Fox, M.C., M.R.C.V.S.

. . . . . .

Will.—Mr. Edward James Fowler, M.R.C.V.S., of Mamelons Farm, Nazeing, Essex, left £110,235. This notification, made on Thursday of last week, recalls the fine practice carried on by the late Mr. Fowler in Dalston. A good equine practitioner, he nevertheless made his name as a canine obstetrician—bull bitches (more especially) being brought to him from all over the country. Having made a fortune, Mr. Fowler retired to Nazeing, where he died in 1949 at the age of 81.

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DR. T. K. EWER'S APPOINTMENT

In our issue of last week we reproduced particulars relating to Dr. T. K. Ewer's appointment to the chair of animal husbandry in the Veterinary Faculty of the University of Queensland. Reference was made therein to the fact that during the past two and a half years Dr. Ewer has been investigating the metabolism of phosphorus and vitamin D in sheep in the Department of Animal Pathology, Cambridge, for which work he was awarded the degree of Ph.D. in 1949. Dr. Ewer was working at Cambridge under an Animal Health Trust Fellowship, and is the second holder of such a fellowship to be awarded a professorship, the first being Dr. C. W. Ottaway, who was appointed last year to the newly established chair of veterinary anatomy in the University of Bristol.

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R.C.V.S. OBITUARY

Makinson, Charles William, Captain late R.A.V.C., Longmeadow, Fleetwood Road, Thornton, Lancs. Graduated Liverpool, July 16th, 1910. Died August 8th, 1950.

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DR. NORMAN WRIGHT LEAVES THE HANNAH INSTITUTE

The Council of the Hannah Dairy Research Institute has accepted with great regret the resignation of Dr. Norman C. Wright, Director of the Institute. For the past two and a half years Dr. Wright has been seconded to the Ministry of Food as Chief Scientific Adviser, a post which at the Minister's invitation he has now accepted on a permanent basis.

Dr. Wright was appointed to the Institute in 1928, the laboratories were officially opened in April, 1931, and it is a tribute to the valuable work carried out by Dr. Wright that the Institute has now become a world famous centre for dairy research.

Apart from his work at the Institute itself, Dr. Wright's services have been frequently sought by countries overseas. In 1936 he acted as Export Adviser to the Government of India; in 1944 he made an extensive tour of the Middle East as one of three members of an Anglo-American Scientific Advisory Mission; in 1945 he was invited to report on cattle breeding and milk production in Ceylon and in 1946 he was appointed a member of the Food and Agriculture Organisation's Mission to Greece. In the same year he acted as a member of the Secretariat of the British Commonwealth Scientific Conference.

In 1947, when owing to the dollar crisis increasing difficulties were anticipated in the country's food problems, Dr. Wright was seconded to the Ministry of Food as Chief Scientific Adviser.

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UNIVERSITY OF LONDON FIRST EXAMINATION IN VETERINARY SCIENCE

(June, 1950, Pass List)

The following Higher School candidates have completed exemption from the First Examination in Veterinary Science: Alexander, Thomas John Lyndon; Walter, Andrew John (both of the Royal Veterinary College). Passed the Examination: Hudson, John Robert (Kingston Technical College).

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ANIMAL HEALTH TRUST

Award of Fellowships and Research Training Scholarships

The Animal Health Trust announce that the following awards of Research Fellowships and Research Training Scholarships have been made:—

1. Wellcome Veterinary Fellowship to Mr. Peter Storie Pugh,

M.B.E., M.C., T.D., M.A., M.R.C.V.S., A.R.I.C., son of L. P. Pugh, Esq., B.SC., F.R.C.V.S., of Sevenoaks.

Mr. P. S. Pugh was educated at Malvern College from 1933-37, when he went to Queens' College, Cambridge, to study medicine. He obtained a B.A. degree in 1939. His ultimate intention was to enter the veterinary profession but to qualify in both medicine and veterinary medicine.

On general mobilisation in 1939, Mr. Pugh rejoined his regiment, The Queen's Own Royal West Kent Regiment, as company commander. He served until December, 1945. He was wounded and awarded the M.C. at Dunkirk in 1940 and made M.B.E. (Military Division) in 1945. He received the Territorial Decoration in 1950, and continues to serve as a Territorial officer in the Cambridgeshire Regiment, R.A.

On release from the Army he entered the Royal Veterinary College and qualified M.R.C.V.S. in 1948 after a brilliant student career in which he received many prizes, including the Williams Memorial Prize, the Coleman Prize, and the R.A.S.E. Medal. In 1948 he re-entered Queens' College, Cambridge, and took Part II of the Natural Science Tripos in Biochemistry. He passed with first-class honours and was awarded the Queens' Natural Science Prize in 1949, and made an Honorary Foundation Scholar of Queens' College. In this year also he became an Associate of the Royal Institute of Chemistry and began research into various aspects of metabolic disorders of animals in the Department of Animal Pathology, Cambridge.

Mr. Pugh has been awarded his Research Fellowship in order to continue his work on metabolism of the ruminant with a view subsequently to investigating the clinical disorders.

2. I.C.I. Fellowship to Mr. Barry Albert Cross, B.A., B.SC., M.R.C.V.S., of 56, Huntingdon Road, Cambridge.

Mr. Cross was born at Coulsdon, Surrey, and educated at Reigate Grammar School from 1933-43. He entered the Royal Veterinary College in 1943 and qualified M.R.C.V.S. in 1947, obtaining credits in hygiene and medicine.

In 1947 he was awarded a Research Training Scholarship and entered St. John's College, Cambridge. He took Part II of the Natural Science Tripos in Physiology and passed with second-class honours. Since September, 1949, he has been working as a Ph.D. student in the School of Physiology, Cambridge, undertaking research on neuro-hormonal mechanisms in lactation, with particular reference to the activation of the posterior pituitary by the suckling stimulus.

Mr. Cross has been awarded the I.C.I. Fellowship for one year in order to continue this work.

3. Cooper Fellowship to Mr. Keith Macfarlane Dyce, B.SC., M.R.C.V.S.

Mr. Dyce was born in Edinburgh and was educated at the Edinburgh Academy from 1931-42. He entered the Royal (Dick) Veterinary College in 1942 and qualified M.R.C.V.S. in 1947, obtaining a credit in hygiene and the Silver Medal in Embryology and Histology. He obtained his B.Sc. degree in the same year.

Mr. Dyce, who obtained the post of Assistant Lecturer in Anatomy at the Royal Veterinary College, where he has been engaged in routine teaching and demonstrating in histology for the last three years, has now decided to return to his previous intention to take up parasitology, and his Fellowship has been awarded so that he may obtain further training in this subject and particularly helminthology. He will work partly at the London School of Hygiene under Professor Buckley and partly at the Trust's Equine Research Station at Newmarket.

4. Research Training Scholarships have been awarded to:—

Mr. T. A. Douglas, M.R.C.V.S., of 47, Lochleven Road, Glasgow, S.2. Mr. Douglas was educated at Glasgow High School and at the Glasgow Veterinary College, where he qualified M.R.C.V.S. in 1948. He now wishes to take an honours degree in biochemistry before undertaking work upon the metabolic diseases of domestic animals.

Mr. L. W. Hall, M.R.C.V.S., of Sutton, Surrey. Mr. Hall was educated at the County School, Sutton, and the Royal Veterinary College, London, where he qualified M.R.C.V.S. last July. He expects to take his B.Sc. final examination in October. Mr. Hall will be engaged in studies on the vascular system (the heart and blood system) of animals—particularly the dog—at the Royal Veterinary College.

Mr. J. G. Phillips, M.R.C.V.S., of The Nurseries, Marlpit Lane, Porthcawl, Glam. Mr. Phillips was educated at the Ogmore Vale Grammar School and at the Royal Veterinary College, where he qualified last July. He also is expecting to take his B.Sc. examination shortly. Mr. Phillips wishes to undertake pathology and bacteriology in connection with poultry, and in his case the Fellowship will be held in the first instance at the Poultry Research Station, but later on, if possible, he will probably take a course for the Diploma of Bacteriology.

Mr. A. J. Stevens, B.SC., M.R.C.V.S., of Trent Side View, Shardlow, Derby. Mr. Stevens was educated at Long Eaton County Grammar School and entered the Veterinary School of Liverpool University in 1944. He qualified M.R.C.V.S. and B.Sc. in 1949. Mr. Stevens wishes to undertake the course for the Diploma of Bacteriology at Manchester, and the Scholarship has been awarded on the basis that satisfactory arrangements can be made.

Mr. W. J. Brinley Morgan, B.V.SC., M.R.C.V.S., of Pen Mill Hotel, Yeovil. Mr. Brinley Morgan, who was born at Bodust, Ammanford, Carmarthenshire, was educated at the Amman Valley Grammar School before proceeding to the Veterinary School of the University of Liverpool in 1944. He qualified M.R.C.V.S. in July, 1949, and obtained his B.V.Sc. Honours degree in that year also. He is interested in a study of antigenic structure of bacteria with special reference to the development of immunity. Before starting on this work, however, he is anxious to take the course for the Diploma of Bacteriology. As it is not possible to make suitable arrangements for taking the course this year, the Scholarship will commence in October, 1951.

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COMMONWEALTH AGRICULTURAL BUREAUX

Review of Activities

The conference held in London from June 21st to July 14th to review the work of the Commonwealth Agricultural Bureaux organisation was the third conference of its kind since this organisation was founded in 1929. The first examination of the activities of the Commonwealth Agricultural Bureaux was made by the British Commonwealth Scientific Conference in 1936. The second was deferred because of the war, and was made at a Review Conference in July, 1946. These reviews are in accordance with a principle laid down in 1933 by a special committee (the Skelton Committee) concerned with examining the activities and organisation of a number of Commonwealth bodies.

The Commonwealth Agricultural Bureaux, through the Executive Council, administers a group of two Institutes and eleven Bureaux concerned with different branches of agricultural science. Their work consists of the collection and dissemination of information for scientists and research workers in agriculture and forestry throughout the Commonwealth. The services and facilities provided are, however, increasingly being made available to such scientists and research workers throughout the world.

[For the history and development of the Commonwealth Agricultural Bureaux, see 28.4.50, Vol. 2, *Science and Research* (Colonial Office Publication).]

The 1950 Review Conference

The object of the Review Conference was to examine all activities associated with Commonwealth Agricultural Bureaux and the governing body, the Executive Council, and to make recommendations to Governments on the financial provision required for the organisation in the five-year period beginning April 1st, 1952. It reviewed the work, direction and possible extension of the usefulness of the Institutes and Bureaux which now comprise the organisation, and considered proposals for new or revised activities.

The conference was attended by some 50 delegates and observers from the United Kingdom and Northern Ireland, Canada, Australia, New Zealand, South Africa, Pakistan, Ceylon, Southern Rhodesia, Colonial territories, the Anglo-Egyptian Sudan, the Republic of Ireland [whose decision to continue its association with the Commonwealth Agricultural Bureaux was welcomed by the conference]. The U.N. Food and Agricultural Organisation was represented.

The conference was opened by Mr. T. Williams, United Kingdom Minister of Agriculture and Fisheries. Dr. I. Clunies Ross, leader of the Australian delegation, was elected chairman. Two plenary sessions of the conference and a number of other meetings were held between June 21st and 23rd, and the conference then divided into two touring parties to inspect the Institutes and Bureaux situated in the United Kingdom.

Visits to Institutes and Bureaux.—Parties of delegates visited the Bureaux and examined their systems of working. (The Bureaux covering interests of the readers of this journal are the Commonwealth Bureau of Animal Health at Weybridge, and those of Animal Nutrition at Aberdeen, of Animal Breeding at Edinburgh, of Dairy Science at Reading, and of Animal Parasitology at St. Albans.)

Recommendations

After the return of the touring parties to London on July 6th, the conference dealt in five committees with the items on the agenda, and submitted reports for consideration in the plenary sessions.

Some 85 recommendations, which are subject to confirmation by the Governments concerned, were passed by the conference. One

recommendation was that a new *Bureau of Agricultural Economics* should be set up and attached to the Institute of Agricultural Economics at Oxford. The establishment of other new Bureaux, which had been proposed at the conference, was not recommended at the present stage, but may be reconsidered at the next Review Conference, to be held in 1955.

It was also recommended that the *Commonwealth Bureaux of Biological Control* at Ottawa should remain in Canada, and that certain of the activities of the existing Bureaux should be extended.

Improved Liaison Facilities.—The conference laid particular stress on the need to strengthen the liaison between the individual Bureaux. A number of resolutions were passed with the object of increasing co-operation of *Official Correspondents* of Bureaux within each country and with their respective Bureaux.

Arrangements to facilitate the temporary attachment of Commonwealth scientists to Bureaux were recommended, and also to make financial provision for more frequent visits to Commonwealth countries by directors and other senior staff of the Bureaux.

The conference further recommended action to increase co-operation between the Bureaux and international bodies, and to devise a scheme allowing for the association of foreign Governments with the Organisation as contributors.

Tribute to the Work of the Conference.—At the conclusion of the conference the delegates were entertained at a dinner by the United Kingdom Government. Lord Ogmore, Under-Secretary of State for Commonwealth Relations, who presided, expressed his Government's congratulations on the successful and harmonious outcome of the conference in its further review of the great co-operative venture represented by the Commonwealth Agricultural Bureaux.

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TUBERCULOSIS IN BRITAIN

The seriousness of the trend of tuberculous infection in this country was again emphasised at a meeting in London on July 27th of the medical committee of the National Association for the Prevention of Tuberculosis, when Dr. Andrew Morland, the chairman, said that tuberculosis was the most serious infectious disease in Great Britain to-day. The rate of 400 deaths a week from the disease, many of them of people in the most important and productive time of life, was much greater than that for road accidents. Approximately four people in every 1,000 of the population examined by mass radiography were found to suffer from active tuberculosis. By modern clinical methods and X-ray technique, including mass radiography, tuberculosis, he said, could be diagnosed at an early and most curable stage. The great handicap to-day was the shortage of hospital beds, due mostly to the lack of nurses and hospital workers. The Minister of Health had declared that 11,000 patients were awaiting admission for treatment, and the waiting period in some areas was 12 months. The shortage of nurses in sanatoria was more acute than in general hospitals. Nursing the tuberculous, he concluded, could be as safe as any other form of nursing, with modern methods of hygiene and protection supplemented by B.C.G. vaccination.

B.C.G. Immunisation at New Preventorium

"Medical circles will watch with interest the experiment inaugurated by Glasgow Corporation to-day in the immunisation of children against infection from tuberculosis by the establishment of a preventorium," writes the Glasgow Correspondent of *The Times* in a message dated August 14th, and continues: "Dr. Stuart Laidlaw explained that the intention was prevention rather than cure. Its object was to seek out susceptible persons, mainly very young children, and contacts with tuberculosis patients. They will be inoculated with the vaccine B.C.G., which has been used successfully on the Continent.

"Dr. Laidlaw said that in Denmark, where such a scheme is operating, the death-rate from pulmonary tuberculosis in 1948 had fallen to 22 in every 100,000 of the population, compared with a rate of 114 in Glasgow. There are 40,000 known contacts in Glasgow who will have to be tested and examined. In the meantime accommodation is provided for 82 children and this will shortly be increased to 140."

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LIVESTOCK EXPORT GROUP

In the quarter ended June 30th the Livestock Export Group report that 203 animals were shipped through the quarantine, and that 318 were sent by direct shipment to Canada and U.S.A. This compares with 120 and 260 head respectively in the same quarter last year.

In addition, a quarantine period for 52 head of stock for shipment to Eire is now in progress, and a shipment to Canada and U.S.A. of 68 head has recently taken place. Over 100 head of livestock still remain to be shipped to Canada and U.S.A. through quarantine, apart from any orders which may be shipped direct.

Shipments to Canada and U.S.A. have been considerably restricted due to repairs and improvements being carried out at the Glasgow quarantine station necessitating the closing of a large portion of accommodation normally available for livestock. The Ministry of Agriculture have been asked to hasten completion of repairs so that the normal flow of shipments may be resumed.

The Group emphasises once again that, although figures may show a maintenance in the export of live animals to all parts of the world, the object of breeders and exporters of pedigree animals is to increase trade. The unsatisfied demand lies in medium-priced animals, which cannot be met because of the refusal of overseas buyers to pay the freight at current levels. A substantial reduction in such charges would bring about the desired increase in trade—without loss to either shipping companies or to the country as invisible income earned by shipping overseas.

Complaints have been received from exporters that the regulation requiring the quarantine of animals before shipment to Eire has been severely retarding the flow of exports to that country. Representations have already been made to the Ministry on the matter by the Group, and a deputation is shortly to be received by the Ministry to hold further discussions.

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FORTHCOMING ROYAL SANITARY INSTITUTE MEETINGS

The programme of Sessional Meetings to be held by the Institute from September, 1950, to February, 1951, includes the following:—

Burnley.—Friday, October 6th, 1950, at 10.15 a.m., in the Central Library, Grimshaw Street. To this meeting a paper on "Some Aspects of the Supervision of Food Supplies" will be contributed by Mr. J. King Shaw, M.R.C.V.S., Veterinary Officer, Burnley.

London.—Wednesday, November 15th, 1950, at 2.30 p.m., at Olympia: The Benjamin Ward Richardson Lecture on "The Report of the Inter-departmental Committee on Meat Inspection" by Mr. G. R. Oake, the Chairman, Inter-departmental Committee on Meat Inspection. (This lecture forms part of the programme of the Public Works and Municipal Services Congress.)

Canterbury.—Saturday, November 18th, 1950, at 2 p.m., in the Board Room, Kent and Canterbury Hospital. Papers on "'Q' Fever" by Dr. B. P. Marmion, Public Health Laboratory Service, and Dr. G. Slavin, Ministry of Agriculture and Fisheries, and Dr. M. S. Harvey, M.O.H., Canterbury, and "Psittacosis (Recent Developments)" by Dr. A. D. Macrae, Virus Reference Laboratory, Public Health Laboratory Service.

London.—Wednesday, December 13th, 1950, at 2.30 p.m., at the Institute. Discussion on "Blowflies in Slaughterhouses," to be opened by Mr. A. A. Green, Senior Experimental Officer, Insecticide Section of the Pest Infestation Laboratory Department of Scientific and Industrial Research.

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800-*Guinea Bull Dies from Anthrax.*—Early in the month the extensive series of outbreaks of anthrax reported in our columns claimed a notable victim in Terling Gable, the well-bred and valuable stock bull owned jointly by Mr. J. Melling and Son, of Grange Farm, Treales, and Mr. George Loftus, of Fir Tree Farm, Salwick. The carcase of this British Friesian bull, which was worth about 800 guineas, was burned after being found dying from anthrax in a loose box at Grange Farm.

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Minerals in Feeding-stuffs.—The report is issued by the proceedings of the conference on mineral mixtures in compound feeding-stuffs held on January 26th, 1950, at the Wellcome Research Institute, Euston Road, London, N.W.1, under the auspices of the Compound Animal Feeding-stuffs Manufacturers' National Association. Dr. H. H. Green opened with a general survey of minerals in relation to animal nutrition, and other contributions included "Cobalt deficiency in Devon and Cornwall" (Mr. J. B. E. Patterson, M.Sc., F.R.I.C.) and "Conditioned copper deficiency of cattle in Britain" (Dr. Ruth Allcroft). The discussion was summed up by the Chairman, Sir James Scott Watson. Copies of the report are obtainable from the C.A.F.M.N.A., at Cereal House, Mark Lane, London, E.C.3.

CORRESPONDENCE

The views expressed in letters addressed to the Editor represent the personal opinions of the writer only and their publication does not imply endorsement by the N.V.M.A.

HOMOEOPATHY IN THE VETERINARY FIELD

Sir,—I was quite interested to see Major Hancock's letter on the above subject in last week's *Record*, especially as he refers to me in his opening sentence.

I suppose it is not to be wondered at that in the course of my long experience I have made very numerous suggestions of a course of treatment for a particular case that were not quite orthodox. It is equally obvious that I cannot hope to remember a considerable number of such instances. But it was always my endeavour to keep an open mind as to methods of diagnosis and of treatment, and to adopt such methods in cases which I considered might benefit from them. I may say that I was never consciously an exponent of homoeopathy as such, but it is true that many of the principles of homoeopathy are equally applicable to allopathy and I have no desire or intention to enter into any discussion of the merits or demerits of either school of thought.

The main object of this note is to invite Major Hancock to refresh my memory of the particular case he quotes, either in your columns or by a personal note as he may choose. I feel very interested and definitely intrigued.

Yours faithfully,

2, Sherwood Road, Hendon, London, N.W.4. GEO. H. WOOLDRIDGE.

August 7th, 1950.

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ATTESTATION: IS IT A GOOD POLICY?

Sir,—Mr. F. B. Edwards, in your issue of June 10th, is on the right track in asking to be supplied with comparative figures of human mortality from tuberculosis from countries other than Scotland. He suggests figures from U.S.A., the Channel Islands and Denmark. But he overlooks the need for certain essential "constants" in such a comparison, and so goes too far in assuming that "if we find no increase in human tuberculosis in these countries it is . . . strong evidence that the increase in Scotland is due to causes other than those suggested by Mr. Pitcher."

To clarify the matter I will name the most essential "constants." The country to be compared with Scotland must have a similar climate, both general and micro-climate; it must have had until recently a heavy incidence of tuberculosis in the native cattle, and there must have been a tendency equal to that of Scotland for human beings to become infected with bovine tuberculosis. The standard of living must be similar. As regards climate, it is particularly necessary that the humidity, average temperature and, above all, the hours of sunshine, should be similar in the countries to be compared.

These conditions at once rule out the Channel Islands, where we know that there has not been in living memory a heavy incidence of bovine tuberculosis in the native cattle. Similarly the United States must be ruled out because the sunshine ratio on the average is nearly double that of Scotland, and the incidence of bovine tuberculosis on the average has never approached the pre-attestation figures for Scotland. Indeed, excepting Australia and South Africa, I can think of no other large country less suited for comparison with Scotland for the purpose under consideration.

Thus the only country of the three mentioned by Mr. Edwards that could fairly be compared with Scotland is Denmark; and I remember reading about 15 years ago in, I think, *The Practitioner*, an article by a Danish doctor named Engelbrecht on this very point. Dr. Engelbrecht, in a practical study of the vital statistics of certain Danish islands, before and after the eradication of bovine tuberculosis, *arrived at the same conclusions as Mr. Pitcher and for the same reasons.*

Many factors must be taken into consideration by students of vital statistics in a matter like this. For instance, it must be known that in the past ten years a really gigantic effort has been made by health authorities in America to conquer human tuberculosis. This fact alone would counteract a tendency for mortality to rise as a possible result of the eradication of bovine tuberculosis. In Australia, on the whole the tendency for the human being to become infected with bovine tuberculosis is so slight that Queensland, for instance, has seen during the past 75 years the former high incidence of non-pulmonary tuberculosis in man fall to about the lowest in the world, in spite of the co-existence of a fairly high incidence of tuberculosis in cattle in the coastal areas. Consequently, as I have said, to get any value from a comparison with Scotland, one must find a country like Scotland; such as the north of England, or the Danish islands.

Yours faithfully,

Derby, Tasmania. J. W. RAINEY.

August 2nd, 1950.

Sir,—For a number of weeks you have had a lengthy correspondence initiated by Mr. L. Pitcher on the question of attestation, with the query—is it a good policy?

I have no desire to compete with Mr. Pitcher on his statistics, but his interpretation leaves much to be questioned. There are some statements in his last letter which leave no doubt in my mind that his knowledge of the subject could be correctly described under the very old phrase—a little knowledge is a dangerous thing.

I do not know how he arrives at the deduction that tuberculous animals produce tuberculin in the milk and beef, neither does he explain why pasteurisation and cooking fails to destroy this mystic substance which is removed in the eradication of the disease. To be fair to Mr. Pitcher, he does state that he is no bacteriologist; perhaps that is sufficient explanation for his long-suffering silent readers.

In *The Times* of August 4th, 1950, there are two pieces of evidence in its columns which, to me, adequately explain most of the increased incidence of tuberculosis amongst the human population.

1. There are over half a million people in the London area still requiring houses. Perhaps Mr. Pitcher will turn his statistical mind to the total number of people requiring houses in the British Isles and in Europe!

2. There are 11,000 tuberculous patients in Great Britain awaiting admission to sanatoria. I have always regarded housing as a factor to be considered in both man and animals as a means of spreading the disease.

In my county there is a recent addition to the attested herds of a farm which had formerly 65 per cent. reactors and to my knowledge open cases in the udder. The owner has handed over the farmhouse to his son, who is the father of a young family. He has gone to reside with a relative who had already an open case of pulmonary tuberculosis in the house. There are six people in a small house and the children are daily visitors. If the incidence of tuberculosis should increase in this family I do hope the eradication of the disease from the cattle will not be held responsible for the disaster.

Most of the whole-time staff of the Animal Health Division are now convinced that the clinical examinations for tuberculosis have limitations. Open cases have been missed in the past and will be in the future even by the so-called experts. To permit cows to excrete tubercle bacilli provides little protection for the individual whose resistance is lowered by other causes. Mr. P. L. le Roux has dealt ably with this point. Moreover, if the dose is large enough it will test any resistance even if the individual has been soaked in Mr. Pitcher's mystic tuberculin.

The Attested Herds Scheme has done more for the permanent benefit of the veterinary profession than anything they have ever undertaken. It has linked every farm to a veterinary surgeon to the mutual and lasting benefit of both. It has given the practising veterinary surgeon in rural areas a basic income to allow him to raise the rest of his standard of professional work to heights never reached in the past. The scheme is not perfect—nothing is perfect in a rapidly developing world. We could use the columns of the *Record* to better advantage if we would devote our energies to putting forward suggestions for the improvement of the scheme and the speeding up of the eradication of tuberculosis rather than by publishing Mr. Pitcher's self-made theories. I have no doubt that Mr. Francis will deal adequately with the rest of Mr. Pitcher's letter without the assistance of one living in the heart of rural England.

Yours faithfully,

28, Folly Lane, Hereford. ARTHUR J. WILSDON.

August 7th, 1950.

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SOME OBSERVATIONS ON JOHNE'S DISEASE

Sir,—In his article on the above subject, Mr. R. H. Smythe says on page 433 of *The Veterinary Record* of July 29th, referring to the method that I described for making an examination for the presence of acid-fast bacilli, "this is a process by which the faeces are diluted, strained and the top layer centrifuged after the heavier particles have been deposited by several hours' standing . . . it does not afford a great deal of help when they (*i.e.*, the bacilli) are scanty owing to the excessive dilution of the faeces." May I point out that in the method I described in *The Veterinary Record* straining is NOT resorted to. In the second place, I should like to know why Mr. Smythe considers what he calls excessive dilution a defect of the method. It is not the diluted material that is examined as such. A sediment can be thrown down equally completely by centrifuging whether the initial volume of the liquid is 2 c.c. or 200 c.c. Dilution does not reduce the number of bacilli in an amount of sediment sufficient to make slides to afford a reasonable amount of searching.

Yours faithfully,

Wroxton, Chorleywood, Herts. A. LESLIE SHEATHER.

August 8th, 1950.